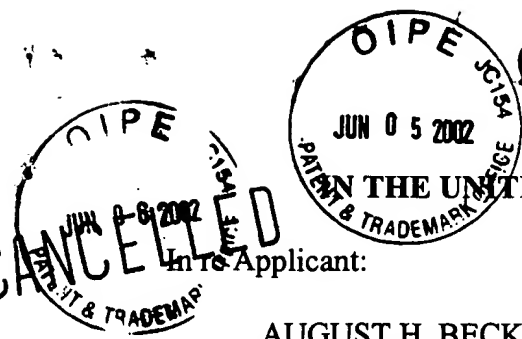


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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:

AUGUST H. BECK, III

Filed: June 18, 1999

Serial No.: 09/336,204

Title: PILOTED DRILL BARREL AND
METHOD OF USING SAME

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Art Unit: 3671

Examiner: Nathan S. Mammen

Docket No.: 063007.0010

RESPONSE B TO OFFICE ACTION

Art Unit 3671
Assistant Commissioner for Patents
Washington, D.C. 20231

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Dear Sir:

This is a response to the Office Action mailed January 16, 2002 in the above referenced application. Claims 1 – 41 are pending in the application. The examiner has indicated that claims 12 – 22 and 34 – 41 are allowable. The examiner has rejected claims 1, 6, 23, 25, 26 and 30 based on prior art. Claims 2 – 5, 7 – 11, 24, 27 – 29 and 31 – 33 are objected to as being dependent on a rejected base claim. Applicant respectfully traverses the rejections based on prior art.

The examiner rejected claim 23 under 35 U.S.C. § 102(b) as being anticipated by Brunsing et al. (U.S. Patent No. 4,671,367). It is respectfully submitted that Brunsing does not anticipate the invention of claim 23 because the barrel of Brunsing is not substantially open at its proximal end. A review of Brunsing indicates that his barrel is substantially closed at the top end. This is clearly shown in FIGS. 9B and 9C which show a solid plate covering the barrel (cross-sectioned but not labeled). Further evidence that Brunsing's barrel is substantially closed

at the proximal end is shown in FIG. 10, which is a top view of the barrel. The broken circles indicate interior surfaces that are covered by the bolted plate and the vacuum swivel (shown as item 200 in FIG. 7). It appears that Brunsing discloses only two relatively small openings in the top of the barrel, which are shown in FIG. 10 disposed radially outward from the kelly and between the supporting flanges for the cover plate. These relatively small vent holes are necessary to release any pressure that may build up under the cap during the coring operation, since Brunsing is a coring device rather than a device for cutting a collar to form a larger shaft around a smaller pilot shaft (as in Applicant's invention). It should not be surprising that Brunsing's barrel is not substantially open at the top, since he is not concerned with collecting cuttings. In fact, Brunsing teaches that cuttings should be vacuumed out of the kerf, not blown out and collected in the barrel through a substantially open top. See column 2, line 68 through column 3, line 7 (noting that "the air flushing/vacuum system thereby eliminat[es] the need to empty the core barrel while drilling is in progress.").

It may be that the examiner is referring to FIG. 6 of Brunsing in support of his assertion that Brunsing's "barrel portion" is substantially open at the top. However, FIG. 6 depicts only the coring sleeve, not the assembled barrel. Applicant is not claiming a substantially open "barrel portion," since any barrel portion would be substantially open if one considers a barrel portion to be simply the cylinder that forms the barrel wall. The term "barrel" must be interpreted in light of applicant's specification, which makes it clear that "barrel" encompasses any member that would cover all or part of the top of the barrel so as to either admit cuttings or prevent them from entering the barrel. Accordingly, it is submitted that Brunsing must be evaluated when the apparatus is assembled and ready for operation—in which case it is clear that Brunsing's device is not substantially open at the proximal end (FIGS. 9B, 9C and 10).

The examiner rejected claims 1, 6, 25, 26 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Brunsing. The examiner asserts that Brunsing discloses all of the claimed limitations with the exception of the diameter (claim 25) and the limitation that the pilot portion is formed integrally with the barrel (claims 1, 6, 26 and 30). Because claim 25 depends from claim 23, which is distinguishable over Brunsing for the reasons stated above, claim 25 is not separately addressed. Rather, Applicant addresses only the “formed integrally” limitation, which was added by amendment.

Preliminarily, however, Applicant submits that claims 26 and 30 cannot be obvious over Brunsing for a separate reason. Specifically, claim 26 (from which claim 30 depends) recites “excavating a collar shaft around said pilot shaft.” Brunsing merely discloses a coring step in which a kerf is excavated. The recited “collar” is excavated to enlarge the pilot shaft, which Brunsing does not do. The examiner can referred to Applicant’s FIG. 9 (at 66) for a depiction of a collar. Applicant submits that this limitation has not been addressed by the examiner.

With respect to the “formed integrally” limitation, it is submitted that the examiner is incorrect that it would be obvious to form Brunsing’s pilot (guide pin 80 in FIG. 7) integrally with Brunsing’s barrel (comprising coring sleeve 50 in FIG. 7). The examiner cites *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893) for the proposition that “forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art.” Not only is this an overstatement concerning the state of law, but the *Howard* case is clearly distinguishable. Moreover, Brunsing’s guide pin 80 and coring sleeve 53 are not “put together” at all.

In *Howard*, it was held that a one-piece grate for a heating stove was obvious in light of the prior art two-piece grate. In contrast, Applicant’s invention does not take a two-piece

structure from the prior art (Brunsing) and simply make it out of one piece. Brunsing's guide pin 80 is not mated or joined to the coring sleeve, nor is it in fixed relation to the coring sleeve. As shown in FIG. 7 and described at column 4, lines 57 – 68, the guide pin is connected to telescoping Kelly bar 83 and is thereby retracted in relation to coring sleeve 50 as kerf drilling progresses past a very early stage. Brunsing provides no motivation for forming the guide pin integrally with the coring sleeve. To the contrary, he teaches away from such an approach. Brunsing is concerned only with digging shallow post holes, not with digging a straight, deep shaft. Accordingly, Brunsing teaches only that a guide pin is used to begin the kerf. He describes this as a “non-slip feature” which is particularly desirable when starting the kerf on rock located on an incline. See column 5, lines 2 – 4. The guide pin is retractable because Brunsing desires to “eliminat[e] the need to extend the pilot hole.” See column 4, lines 65 – 68 and FIG. 4. Not only does Brunsing teach away from forming the guide pin integrally with the barrel, it would not be a straightforward matter to do so in Brunsing's device even if one had the necessary motivation. Brunsing's guide pin 80 cannot be connected to coring sleeve 50 because Brunsing is coring around the pilot shaft, not excavating a collar to enlarge a pilot shaft.

Applicant's invention is completely different from that of Brunsing, and distinct advantages are provided by Applicant's approach of forming the pilot portion integrally with the barrel. Applicant's invention is particularly useful for drilling shafts for deep foundations, in which it is highly desirable to have a straight shaft. To achieve this objective, the pilot portion must pilot the barrel all the way into the shaft. Otherwise, the rotating barrel may deviate from straight-line drilling at any point along the shaft. A retracting pilot, that only aids in starting a kerf, provides none of the foregoing advantages.

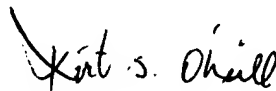
Notwithstanding the *Howard* case, there are numerous modern cases that hold that it is not necessarily obvious to form a structure out of one part merely because the prior art discloses a two-part structure. These cases generally hold that it is not obvious to form one part out of multiple parts where there is no suggestion in the prior art to do so, or where doing so results in a particular advantage not provided by the prior art. See *Carl Schenk, A.G. v. Nortron Corp.*, 713 F.2d 782, 785 (Fed. Cir. 1983) (replacement of bolted leaf springs with unitary structure held not obvious because unitary structure eliminates need for damping); *In re Miller*, 329 F.2d 1015, 1017 (CCPA 1964) (substituting one diaphragm for three diaphragms held not obvious); *In re Hubbell*, 164 F.2d 700, 701-702 (CCPA 1947) (a furnace liner made of one piece instead of multiple adjacent rings held not obvious). In fact, the court in *In re Hubbell* observed that there were numerous exceptions to the general rule, and discusses several cases in which exceptions were granted. Applicant submits that its claims here do not fall under the general rule. Brunzing teaches away from Applicant's invention in that he teaches the desirability of a guide pin formed separately from the barrel and retractable (movable) with respect to the barrel, leaving the barrel to potentially deviate from straight-line drilling. In contrast, Applicant's claimed invention permits the drilling of a deep, straight shaft wherein the integrally formed pilot always guides the barrel along a pilot shaft.

The examiner has similarly rejected claims 1 and 26 under 35 U.S.C. § 103(a) as being unpatentable over SU 590445. Although the examiner concedes that this reference does not disclose that the pilot portion is formed integrally with the barrel portion, the examiner asserts that it would have been obvious in view of this reference to do so, again citing *Howard v. Detroit Stove Works*. Once again, this reference teaches away from Applicant's solution. This reference's "guide stem" is formed separately from the barrel for the stated purpose of allowing

the guide stem to reciprocate under the influence of air pulses, thereby forcing cuttings down into the pilot shaft and also causing threaded portion 11 to turn, which further aids in moving cuttings down into the pilot shaft. This reciprocating, piston-like action of the pilot portion is described as being highly desirable, and in fact it appears to be the entire point of the reference. In contrast, Applicant's invention has nothing to do with forcing cuttings down into the pilot shaft. To the contrary, Applicant's invention is concerned with removing cuttings from the shaft, including the ability to remove smaller cuttings from the pilot shaft through an auger flight. Such cuttings cannot be removed if the pilot portion and barrel reciprocated with respect to each other and were open (not mated in closed fashion) as shown in SU 590445. Simply stated, collection and removal of cuttings is aided by integrally forming the pilot portion with the barrel, whereas the cited reference, with its piston-like, two piece approach, accomplishes exactly the opposite—pushing cuttings down into the pilot shaft.

In view of the foregoing arguments, it is submitted that all of the rejections and objections should be withdrawn. An early allowance of all claims is respectfully solicited.

Respectfully submitted,



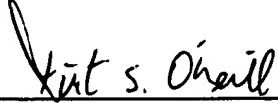
Kirt S. O'Neill, Reg. No. 38,257

Date: May 16, 2002.

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on May 16, 2002.



Kirt S. O'Neill, Reg. No. 38,257